RASTER-SCAN CONTINUED FROM PAGE 6

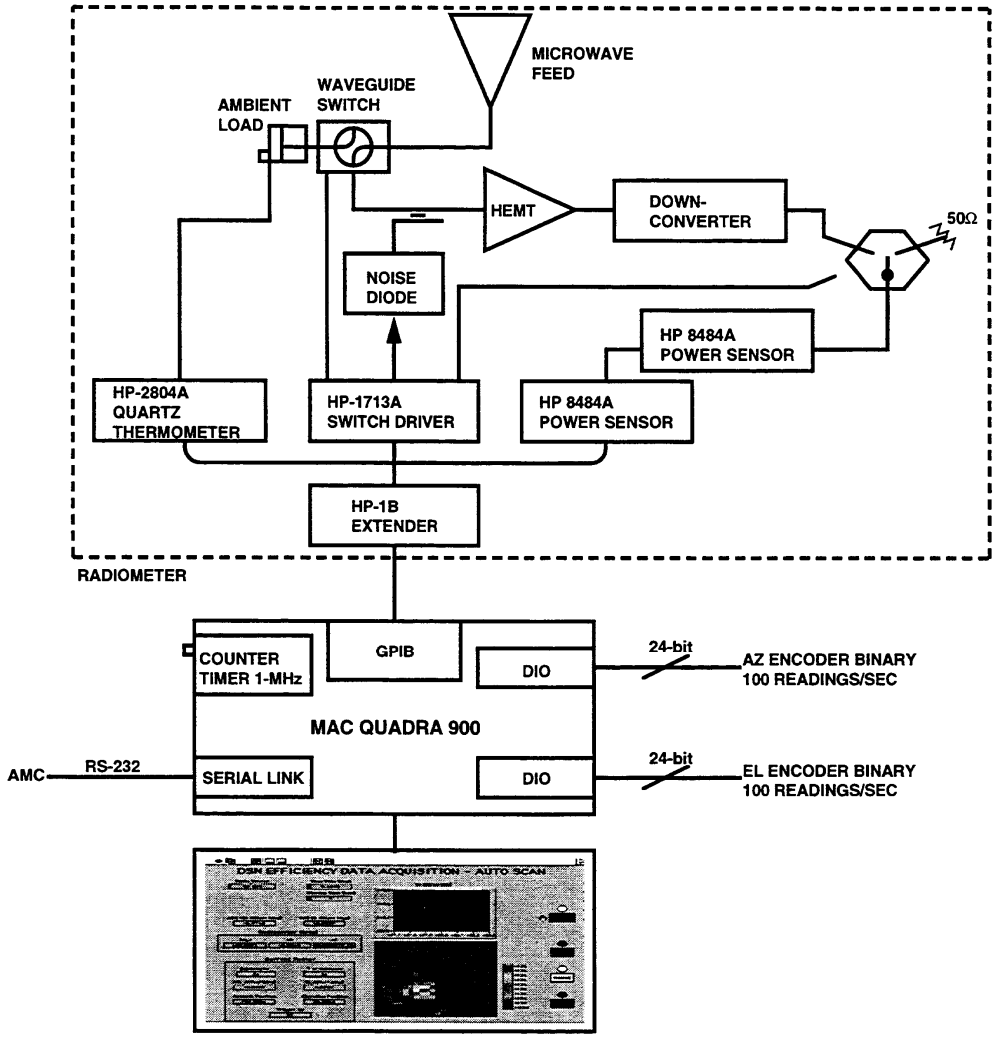

FIGURE 1. RASTER-SCAN TPR SYSTEM ARCHITECTURE

[1] The term "radio star" refers to any natural, point-like source of radiation, which may actually be a remote galaxy of stars or a region of bright microwave emission surrounding a star in our own Milky Way galaxy, for example.

[2] An alternative, polar-scan format is also possible, but this involves Fourier-Bessel transforms, which are more difficult and require more time to compute.

TMOD CONTINUED FROM PAGE 4

The TMOD Technology (TMOT) Office

In order to emphasize the importance of technology in TMOD's new role and challenges, the TMOT office was established. There are several key differences from the old Telecommunications and Data Acquisition Technology Office.

First, TMOT is responsible for end-to-end technology infusion. This means working both flight and ground technology issues in a coordinated way.

Second, TMOT is responsible for both data and mission services. The old office worked mainly on data services. The new TMOT office includes elements of the old MGSO Continuous Improvement Program (CIP.) In fact, the mission services area is expected to grow over the next few years. Third, TMOT provides a leadership role at JPL as it coordinates with other technology programs.

TMOT Organization

TMOT is a small program office — the smallest in TMOD. Almost all the real work is accomplished in the technical divisions.

TMOT has two *Technology Managers* (TMs) to do the general program management functions. These are divided along the data and mission services lines, as in Figure 5. Laif Swanson is the TM for data services, and Peter Shames performs this function for mission services. Charles Stelzried remains in the office to support Peter and Laif (and to publish this newsletter).

Future Directions

TMOD has reorganized. However, we still have not learned how to do business in this new organization. We are working on the interfaces between the TMOD program offices — including TMOT.

One recent example of this was the unified call for proposals for both the technology program and CIP. The intent is to truly integrate data and mission services within the technology program. The difficulty is that CIP funds are used both for technology and straight-forward engineering tasks. The proposal process was successful, in that we learned a lot about creative ideas from all areas of the two programs. There is still room for improvement. We in the TMOT office would be happy to hear from any of you readers.

As the year progresses, we will be working with the Technology and Applications Programs (TAP) directorate to further coordinate our technology programs. We will attempt to integrate our task selection processes during the coming year.

We have been working with Joe Statman, the manager of the TMOD Engineering Office, on a new process for technology infusion. Joe comes from our program and understands the importance of technology.

We will be going through a period of continued major change. I hope you will all apply the same creativity, leadership, and innovation you already exhibit in technology development to help us achieve our new organizational goals.

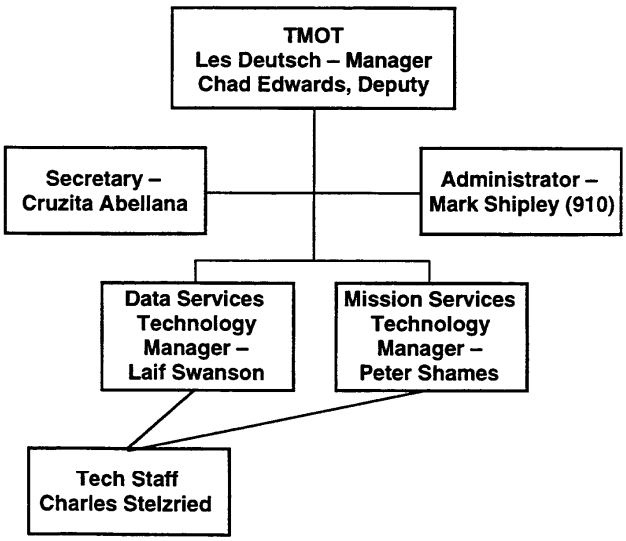

FIGURE 5. TMOT ORGANIZATION

In This Issue continued from page 1

L. Cangahuala et al describe a new class of navigation software initiated in 1994 now allowing for an automated real-time spacecraft navigation system (ARTSN). This system will greatly improve the efficiency of the navigation analysis process and, thus, enable simultaneous support of additional spacecraft by a single analyst. Additionally, faster orbit solution generation, relative to manual systems, reduces the turn-around time between critical events and the required response, allowing new modes of operation with increased reliability and reduced costs. This is especially important during critical events such as the launch phase, aerobraking, maneuver monitoring, and approach navigation.

Finally, Valery Altunin and Tom Kuiper explain the contribution of the DSN 70-m antennas as elements of a space very-long-baseline interferometer (SVLBI) mission that combines space-based and ground-based radio telescopes to perform high resolution radio astronomy observations. The authors describe equipment upgrades that enable DSN participation in current and future SVLBI missions. The advantage of space-ground VLBI, allowing baselines greater than two earth diameters, is demonstrated with an image of a distant quasar. The unprecedented resolution was produced from interferometer fringes obtained between the VSOP space radio telescope and the 70-m Tidbinbilla radio telescope.

Coming In Issue 10

TMOD Technology

"NASA's Deep Space Telecommunications Roadmap"	C. Edwards/C. Stelzried

. . . and other interesting articles

Science

"Goldstone – Apple Valley Radio Telescope Status and Plans"	M. Klein

On the Web

The *TMOD Technology and Science Program News,* and related TMOD features are located at:

http://deepspace.jpl.nasa.gov/technology/

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